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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/055,336	01/23/2002	Diakoumis Parissis Gerakoulis	2001-471	8017

7590 12/27/2005

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EXAMINER
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GREY, CHRISTOPHER P

ART UNIT	PAPER NUMBER
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2667

DATE MAILED: 12/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/055,336

Applicant(s)

GERAKOULIS ET AL.

Examiner

Christopher P. Grey

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 1-22 are objected to because of the following informalities: Regarding claim 1, an abbreviation of a first time mention of the terms "IS-OFDM" and "IDFT" are objected to.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-11, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al. (US 6904283), hereinafter referred to as Li, in view of Tong et al. (US 6804521), hereinafter referred to as Tong

Claim 1 Li discloses a base station within an OFDM environment (Col 3 lines 5-53).

Li also discloses the base stations transmitting and receiving (transceiving) information to and from a number of subscriber units (Col 3 lines 5-53).

Li discloses the base station serving a cell (perimeter), where a number of subscribers are within each cell (Col 3 lines 5-53).

Li discloses monitoring inter-cell interference (Col 5 lines 35-61). However, Li does not specifically disclose not creating interference outside an in-premise perimeter.

Tong discloses a number of user group areas, which is comprised of a number of user terminals (Col 3 line66-Col 4 line10).

Tong discloses a base station communicating with a selected user from a user group area without interference from any adjacent user group areas (Col 2 line 63-Col 3 line 3 and Col 4 lines 60-Col 5 line22 and see fig 1a and 2a).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to combine the Radio frequency unit (Col 14 lines30-55) as disclosed by Tong, within the base station as disclosed by Li. The motivation for this combination is to avoid inter-cell interference and avoid interference of different user group areas (see abstract).

Claim 2, 3 Li discloses broadcasting pilot signals from a base station to a number of subscribers (Col 7 lines 37-Col 8 lines 17). However, Li does not specifically disclose the base station receiving wired traffic signals from an external network.

Tong discloses the base stations being connected to the Internet, where data is routed from the base station to terminals (Col 1 lines 55-65 and Col 2 lines21-39). Furthermore, Tong discloses using broadcasting pilot signals from a base station to a number of terminals within a given sector (Col 6 lines 3-41).

It would have been obvious to one of the ordinary skill in the art at the time of the invention that information received from the internet as disclosed by Tong, may be transmitted to several user terminals as disclosed by both Li and Tong. The motivation

for this interpretation is to notify the terminals of updates to external networks, and also to test user terminals in order to obtain information about a user group sector.

Claim 4 Li discloses a number of possible subscribers within a cell, where any two subscribers may communicate with each other through the base station (Col 3 lines 5-53). Therefore Li discloses subscribers communicating within an in premise perimeter.

Claim 5, 6 Li discloses an OFDM channel being separated into a plurality of groups, each group comprising a plurality of bins (Col 5 lines 10-45).

Li also discloses control information being communicated between the base station and subscribers (Col 5 lines 10-45).

Claim 7 Li discloses each subscriber sending a request to transmit data to the base station via a control group before attempting to transmit any data (Col 6 lines 7-62 and Col 11 lines 10-15).

Claim 8 Li discloses the base station monitoring all of the subscriber's transmission and available bandwidth (Col 5 lines 35-Col 6 line 6).

Claim 9, 10 Li discloses the base station using information about the subscribers and clusters in order to perform cluster allocation, load scheduling and admission control (Col 11 lines 10-61), where it would have been obvious to one of the ordinary skill in the art at the time of the invention that admission control involves the granting and blocking of data communication.

Li specifically discloses cluster allocation, equivalent to allocating to which group the terminal transmits data.

Claim 11 Li also discloses the base stations transmitting and receiving (transceiving) information to and from a number of subscriber units (Col 3 lines 5-53).

Li discloses a transmitted signal comprising a plurality of sub carriers where each sub carrier contains more than one symbol (Col 7 lines 27-32).

Claim 16, 17 Li discloses providing local area networking services, where any service providing communication between a control unit and a terminal is equivalent to providing local area networking services (Col 3 lines 5-53).

Li discloses providing wireless in premises distribution of broadcast cable channels (Col 5 lines 10-61).

Li discloses providing in premises wireless access and routing to external networks.

Li discloses monitoring inter-cell interference (Col 5 lines 35-61). However, Li does not specifically disclose not creating interference outside an in-premise perimeter. Li does not specifically disclose the base station receiving wired traffic signals from an external network.

Tong discloses the base stations being connected to the Internet, where data is routed from the base station to terminals (Col 1 lines 55-65 and Col 2 lines 21-39). Furthermore, Tong discloses using broadcasting pilot signals from a base station to a number of terminals within a given sector (Col 6 lines 3-41).

Tong discloses a number of user group areas, which is comprised of a number of user terminals (Col 3 line 66-Col 4 line 10).

Tong discloses a base station communicating with a selected user from a user group area without interference from any adjacent user group areas (Col 2 line 63-Col 3 line 3 and Col 4 lines 60-Col 5 line22 and see fig 1a and 2a).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to combine the Radio frequency unit (Col 14 lines30-55) as disclosed by Tong, within the base station as disclosed by Li. The motivation for this combination is to avoid inter-cell interference and avoid interference of different user group areas (see abstract).

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claim 14 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6882619. Although the conflicting claims are not identical, they are not patentably distinct from each other because Gerakoulis discloses:

serial-to-parallel conveying an input data stream to produce a plurality of parallel data streams;

further serial-to-parallel converting said plurality of parallel data stream to produce a plurality of parallel data sub-stream;



spreading said plurality of parallel data sub-streams by an orthogonal binary code sequence resulting in a plurality of parallel spread data sub-streams separated from each other by orthogonal codes;

further serial-to-parallel converting said plurality of parallel spread data sub-streams to produce a plurality of parallel data signals;

encoding said plurality of parallel data signals to produce a plurality of encoded data signals;

operating on said plurality of encoded data signals to produce a plurality of IDFT outputs parallel-to-serial converting said, plurality of IDFT outputs to produce an intermediate IS-OFDM data signal, wherein said intermediate IS-OFDM data signal comprises a plurality of frames;

adding a cyclic prefix to each frame of said intermediate IS-OFDM data signal to produce an IS-OFDM data signal; and

digital-to-analog converting said IS-OFDM data signal to produce an IS-OFDM transmit signal (see claim 1).

Gerakoulis does not specifically state further serial-to-parallel converting said plurality of parallel data stream to produce a plurality of parallel data sub-stream. However, serial-to-parallel converting said plurality of parallel data stream to produce a plurality of parallel data sub-stream is a slight variation of the limitation disclosed in claim 1 which states s/p converting said digital received signal, having a cyclic prefix removed, to produce a plurality of parallel received data points (Col 19 lines 8-10).

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4. Claim 15 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 21 of U.S. Patent No. 6882619. Although the conflicting claims are not identical, they are not patentably distinct from each other because Gerakoulis discloses:

analog-to-digital converting a received analog signal;

operating on said received analog signal to produce a digital received signal;

serial-to-parallel converting said digital received signal, comprising a plurality of frames, to produce a plurality of parallel-received data points;

further operating on said digital received signal to remove a cyclic prefix from each frame;

further operating on said plurality of parallel-received data points to produce complex data signal points;

decoding and demapping said complex data signal points to produce a plurality of parallel data points;

parallel-to-serial converting said plurality of parallel data points to produce a serial data stream;

despreading said serial data stream to produce despread data signals;

accumulating said despread data signals to produce accumulated data streams;

parallel-to-serial converting said accumulated data streams to produce all intermediate recovered data stream; and

further parallel-to-serial converting said intermediate recovered data streams to produce a recovered data stream (claim 21).

***Allowable Subject Matter***

5. Claims 12 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hakkinen et al. (US 6,282,185), Dollard (US 6,934,340), Schreiber et al. (US 5,425,050) and Kapoor et al. (US 6,795,424) are cited to show an interference suppressing OFDM method for wireless communications, which is considered pertinent to the claimed invention.


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6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher P. Grey whose telephone number is (571)272-3160. The examiner can normally be reached on 6:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on (571)272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christopher Grey  
Examiner  
Art Unit 2667

  
12/20/05

  
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12/21/05